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REMARKS

Claims 1-24 are pending in the present Application. Claims 17-21 are withdrawn, Claims 1-2, 9, 14, 16, and 22-24 have been amended, and no new claims have been added, leaving Claims 1-24 for consideration upon entry of the present Amendment. Reconsideration and allowance of the claims is respectfully requested in view of the above amendments and the following remarks.

No new matter has been introduced by these amendments.

Support for the amendments to Claims 1, 2, 9, 14, 22, and 24 is found at least in original Claim 2 and paragraphs [0035] and [0036] of the specification. Support for the amendments to Claim 16 is found at least in paragraph [0071] of the specification. Support for the amendments to Claim 23 is found at least in paragraphs [0038], [0049], and [0051] of the specification.

Further support for the amendments to claim 24 is found in paragraph [0079] of the specification.

Claim 9 has further been amended to correct an inadvertent typographical error, and now recites "a dissipation factor of less than or equal to 0.007". Support for this amendment is found at least in the Detailed Description, paragraphs [0019] and [0073], and in Claims 1 and 14.

A similar correction has been made to the specification at paragraph [0008].

Figure 4 has been amended to correct two mislabeled layers. Layer 32 has been relabeled to be layer 31, and layer 40 is relabeled to be layer 43. Support for these corrections is found in the description of Figure 4 in paragraph [0071] of the specification.

Response to Restriction

Applicants hereby elect Claims 1-16 and 22-24 (Group I), drawn to a circuit material, without traverse. Claims 17-21 (Group II), drawn to a process of forming a dielectric LCP composite, are withdrawn from further consideration.

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Objection to the Claims

An Objection under 37 C.F.R. § 1.126 was made to the numbering of original Claim 22 and Claim 24 (which was mislabeled as also being Claim 22). The numbering of the Claims has been corrected.

Rejections under 35 U.S.C. § 112, second paragraph

Claims 14 and 16 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention.

In particular, Claim 14 has been rejected for omission of the term "substrate" from the phrase "the first dielectric layer." The correct phrase should read "the first dielectric substrate layer." The text of Claim 14 has been amended to correct this error.

Claim 16 has been rewritten to better define the invention and to provide a proper antecedent basis for dependency from Claim 14. If the amendments to claim 16 do not cure the alleged indefiniteness, Applicants request clarification from the Examiner. The amendments to claims 14 and 16 are therefore made for clarity, and do not narrow the claim scope.

Claim Rejections Under 35 U.S.C. § 102(b)

Claims 1, 2, 5, 6, 9, 10, 14, and 15 are rejected under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 6,124,004 (hereinafter "Furuta"). Furuta discloses a composition comprising a liquid crystal polyester continuous phase and a rubber-dispersed phase (column 2 lines 41-46), wherein the rubber phase is reactive with the liquid crystal polyester phase (column 2 lines 49-51; and a fiber material (column 2 lines 58-60). Furuta also discloses inorganic filler materials at column 10, lines 23-29, and an optional "organic filler" at column 10, line 33). Furuta does not disclose use of a combination of a mineral filler and an organic filler, particularly a fluoropolymer filler.

To anticipate a claim, a reference must disclose each and every element of the claim. *Lewmar Marine v. Varient Inc.*, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987). Each of independent claims 1, 9, and 14 recite use of a mineral filler treated with a coupling agent. These claims, and their dependent claims, are accordingly not anticipated by Furuta.

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Claims 1-3, 5-15, and 22-24 are rejected under 35 U.S.C. 102(e) as anticipated by U.S. Patent No. 6,528,145 (hereinafter "Berger"). Berger discloses a composite electronic and/or optical substrate comprising polymeric and ceramic materials (column 5, lines 16-18). The ceramic materials may be present in the form of a filler, as described generally beginning at column 7, line 4. The polymeric material, on the other hand is not used as a filler in a composition comprising a liquid crystalline polymer. Berger thus does not disclose a composite comprising a liquid crystalline polymer and a filler composition comprising a mineral filler and an organic filler, particularly a fluoropolymer filler. Applicants therefore respectfully request withdrawal of the rejections under 35 U.S.C. § 103 and allowance of the claims.

Claim Rejections Under 35 U.S.C. § 103(a)

In the alternative, Claims 1-16 are rejected under 35 U.S.C. § 103(a), as obvious over Berger or Furuta. Applicants respectfully traverse these rejections.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e., that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Neither Berger nor Furuta, nor a combination of Berger with Furuta renders claims 1-16 obvious. Furuta generally discloses a liquid crystalline polymer composition that has been modified by the addition of a reactive rubber dispersed phase (column 2 lines 41-51). Only a passing reference is made to use of organic fillers, and there is no suggestion to use a combination of a mineral filler and an organic filler, or the particular combination of silica and a fluoropolymer. Berger generally discloses a variety of organic polymers that may be used in combination with a variety of mineral fillers. Berger does not disclose or suggest that use of a combination of a mineral filler and a fluoropolymer would be useful or advantageous. Thus, the

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prior art fails to disclose the particular combination presently claimed, as well as any motivation to make the combination, or any expectation of success in so doing. The present claims are accordingly nonobvious over Berger, Furuta, or a combination of Berger and Furuta.

In addition, the inventors hereof have found an unexpected benefit that accrues from use of a mineral filler together with an organic filler. As shown in the Declaration of Sankar K. Paul, attached hereto, the peel strength between the claimed composite and copper is significantly increased over the peel strength of a sample made with only silica filler. These significant improvements are neither taught nor suggested by the prior art. It is therefore believed that the claims are nonobvious under 35 U.S.C. § 103, and allowance is respectfully requested.


It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance is requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

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By



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